

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

First named inventor: Bernd Stöber
Serial No: 10/707,495
Filing Date: 12/18/2003
Title: Drive Device Comprising a Gear Unit and a Motor Unit
Examiner: David Morgan Fenstermacher
Art Unit: 3682

APPEAL BRIEF

Appellant herewith submits the Appeal Brief pursuant to 37 CFR 41.37 in support of the Notice of Appeal filed 4/14/2008 in the Patent and Trademark Office.

The required **fee for filing a brief in support of an appeal** pursuant to 37 CFR 41.20(b)(2) in the amount of \$510.00 is paid herewith.

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REAL PARTY IN INTEREST

Real party in interest is the assignee of record, **Stöber Antriebstechnik GmbH & Co.**, of Kieselbronner Str. 12, 75177 Pforzheim, Germany.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claim 1 - rejected, on appeal.
Claim 2 - canceled.
Claim 3 - canceled.
Claim 4 - rejected, on appeal.
Claim 5 - canceled.
Claim 6 - rejected, on appeal
Claim 7 - rejected, on appeal
Claim 8 - rejected, on appeal.
Claim 9 - rejected, on appeal.
Claim 10 - rejected, on appeal
Claim 11 - rejected, on appeal
Claim 12 - rejected, on appeal
Claim 13 - rejected, on appeal.
Claim 14 - rejected, on appeal
Claim 15 - rejected, on appeal
Claim 16 - rejected, on appeal.
Claim 17 - rejected, on appeal.
Claim 18 - rejected, on appeal
Claim 19 - withdrawn
Claim 20 - withdrawn.
Claim 21 - withdrawn.
Claim 22 - withdrawn
Claim 23 - withdrawn.
Claim 24 - withdrawn.
Claim 25 - withdrawn.
Claim 26 - withdrawn.

STATUS OF AMENDMENTS

No amendment after final was filed.

The claims in the appendix reflect the changes made by amendment filed 5/3/2007.

SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 claims a drive device that comprises a gear unit (3) having a gear shaft (5). The drive device further has a motor unit having a motor shaft (21) drivingly connected to the gear shaft. A coupling unit (housing 6, coupling hub 7, bearing 8, securing ring 10; see Fig. 1; see specification paragraphs 0016-0018) is arranged between the gear unit and the motor unit and drivingly connects the gear shaft (5) and the motor shaft (21). At least one cooling unit (fan wheel 11) is arranged in the coupling unit (see Fig. 1; see paragraph 0016).

The coupling hub (7) is connected with one end to the sun wheel (4) of the gear unit (3) and with the other end to the motor shaft (21) in the coupling housing (6). The coupling hub (7) has a longitudinal slot (20) that enables widening of the hub (7) for insertion of the motor shaft (21). The motor shaft (21) and the hub (7) are secured to one another by means of a clamping ring (22) applying a radial clamping force. This is described in detail in paragraphs 0017 and 0018 of the specification. In the coupling unit (6, 7, 8, 10) between the gear shaft and the motor shaft the cooling device is arranged. Fig. 1 shows the cooling device in the form of a fan.

Motor unit and gear unit (i.e., the motor shaft and the gear shaft) are detachable from the coupling unit and the cooling unit is therefore easily accessible (paragraph 0022).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 4 and 6-18 are unpatentable under 35 U.S.C. 103(a) over *Kummer et al.* (US 5,315,193) in view of *Boulva* (US 2003/0188520).

ARGUMENT

Rejection of claims 1, 4 and 6-18 under 35 U.S.C. 103(a) over *Kummer et al.* (US 5,315,193) in view of *Boulva* (US 2003/0188520).

Examiner argues that *Kummer et al.* shows the claimed invention with electric motor (3) driving the shaft (4) that couples the motor and the gear unit. Therefore, in examiner's opinion, the shaft is a coupling unit as per the claims. The examiner further argues that the coupling unit/shaft has a fan (5) mounted thereon. According to the examiner, the coupling unit/shaft proceeds to engage a gear arrangement which turns the power 90 degrees to output at the grinding disk (9). The examiner argues further that the casing has at least one inlet and one outlet (as disclosed in the Abstract) for the flow of cooling medium. The examiner also states that since the shaft rotates it therefore elastically widens over a portion of its length.

The examiner then states that *Kummer et al.* does not show a clamping ring connecting the coupling between the fan and the shaft. Such a clamping ring is shown according to the examiner in *Boulva* where a fan (10) is shown that provides cooling air as shown in Fig. 6. The fan blades are attached to the shaft by a coupling ring (15, 74). In examiner's opinion it would have been obvious to provide the arrangement of *Kummer et al.* with a coupling ring as shown in *Boulva et al.* in order for the fan to be easily removed for repair and replacement.

Claims 1, 4, 17, 18

Appellant respectfully submits that claim 1 defines that

- the **coupling unit is arranged between the gear unit and the motor unit;**
- **the coupling unit drivingly connects the gear shaft and the motor shaft.**

Thus, the coupling unit is clearly defined as a **part separate from the motor shaft** since it couples the motor shaft and the gear shaft. The coupling unit that couples the motor shaft and the gear shaft is set forth as a separate element and cannot be the motor shaft itself.

Claim 1 further defines that the at least one cooling unit is arranged in the coupling

unit. As set forth above, the coupling unit is defined as a part separate from the motor shaft (it drivingly connects the motor shaft and the gear shaft) and the cooling unit, according to the language of claim 1, is **arranged in** the coupling unit, i.e. a part that is separate from the motor shaft.

Therefore, the examiner's interpretation that the motor shaft can be broadly considered a coupling unit does not read on claim 1.

Kummer et al. shows in Figs. 1 and 2 a motor shaft 4 with fan wheel 5 attached thereto. A coupling unit that drivingly connects the motor shaft and the gear shaft is not shown. The gear unit is only schematically shown in *Kummer et al.*; no drive connection of motor shaft and gear shaft is shown. There is no cooling unit shown that is arranged in the coupling unit (no coupling unit is present). The only teaching to be derived from *Kummer et al.* is that a fan wheel is to be mounted on the motor shaft.

The second embodiment of *Kummer et al.* (Figs. 4 and 5) also shows fan wheel 23 mounted on the motor shaft 22. The radial blower 26 formed by the fan wheel 23 and the air guide casing 27 is integrated into the casing 20 of the motor (this is explicitly stated in col. 3, lines 31ff, of *Kummer et al.*). This embodiment therefore also teaches simply that a fan wheel is to be mounted on the motor shaft within the motor casing.

There is no disclosure in *Kummer et al.* regarding a cooling unit that is to be arranged in a coupling unit provided between motor unit and gear unit, wherein the coupling unit drivingly connects the motor shaft and gear shaft.

Kummer et al. cannot make obvious the subject matter as claimed in claim 1.

As *Boulva* is cited only in regard to the clamping ring which is claimed in claim 9, no discussion of *Boulva* is provided in this context.

Claim 6, 14

Claim 6 sets forth that the coupling unit comprises a coupling hub connected fixedly to the gear shaft and the motor shaft. *Kummer et al.* does not show a coupling hub connected to the gear shaft and the motor shaft. *Kummer et al.* does not show how the drive connection of motor shaft and gear shaft is embodied. Shown is only that the fan wheel is mounted on the motor shaft.

Claim 6 is therefore not obvious in view of *Kummer et al.*

As *Boulva* is cited only in regard to the clamping ring which is claimed in claim 9, no discussion of *Boulva* is provided here.

Claim 7

Claim 7 sets forth that the coupling hub is configured to elastically widen over a portion of a length thereof. Neither a coupling unit nor a coupling hub connected to the gear shaft and the motor shaft is shown in *Kummer et al.* Since there is no coupling hub disclosed, there is no coupling hub that elastically widens. Examiner's remark (page 2, lines 3 and 4 from the bottom of the page) that the shaft rotates and therefore elastically widens is not understood; how would a solid metal shaft elastically widen over a portion of its length upon rotation?

Claim 7 is therefore not obvious in view of *Kummer et al.*

As *Boulva* is cited only in regard to the clamping ring which is claimed in claim 9, no discussion of *Boulva* is provided here.

Claim 8

Claim 8 defines that the coupling hub has at least one longitudinal slot. No coupling hub is shown in *Kummer et al.* - therefore, a coupling hub having a longitudinal slot is also not disclosed.

Claim 8 is not obvious in view of *Kummer et al.*

As *Boulva* is cited only in regard to the clamping ring which is claimed in claim 9, no discussion of *Boulva* is provided here.

Claims 9, 10, 11 12

The examiner argues that *Boulva* shows a fan with fan blades (15) and the fan blades are attached by a coupling ring (15, 74) that securely attaches the fan blades to the shaft.

The element 74 is the shaft; a nut 75 is used to secure hub 70 to the shaft 74 (see para [0043]; see Fig. 9a). Element 15' is a mounting nut: see paragraph 0029, lines 9-11:

"Fan blades 15 are removably secured to a motor shaft 16 and are attached to the shaft 16 with a mounting nut 15' and rotate thereon."

This reference therefore only discloses a nut that axially presses a fan wheel Or other fan part against a support on the shaft.

The present invention claims a clamping ring (21) that is not used for attaching the fan but for securing the coupling hub to the motor shaft. The coupling ring (21) is tightened radially about the coupling hub so as to press the coupling hub against the motor shaft inserted into the coupling hub (see paragraph 0018). The nut for axially securing a fan on a support cannot make obvious a radially acting clamping ring for securing a shaft inside a coupling hub.

Claim 9 is not obvious in view of *Kummer et al.* and *Boulva*.

Claim 13

Claim 13 defines the at least one fan is fixedly mounted on the coupling hub. No coupling hub that is connected to the drive shaft and the gear shaft is shown in *Kummer et al.* so that a fan mounted on a coupling hub is also not shown. The fan of *Kummer et al.* is always mounted on the motor shaft.

Claim 13 is not obvious in view of *Kummer et al.*

As *Boulva* is cited only in regard to the clamping ring which is claimed in claim 9, no discussion of *Boulva* is provided here.

Claim 15

Claim 15 defines that the coupling unit has a flow chamber and that the fan is positioned in the flow chamber. As pointed out above in connection with claim 1, a coupling unit is not shown; therefore, a flow chamber in such a coupling is not shown.

Claim 15 is not obvious in view of *Kummer et al.*

As *Boulva* is cited only in regard to the clamping ring which is claimed in claim 9, no discussion of *Boulva* is provided here.

Claim 16

Claim 16 defines that the coupling unit has at least one intake opening and at least one exhaust opening that open into the flow chamber. There is no coupling unit disclosed in *Kummer et al.* and therefore there is no intake, no exhaust and no flow chamber.

Claim 16 is not obvious in view of *Kummer et al.*

As *Boulva* is cited only in regard to the clamping ring which is claimed in claim 9, no discussion of *Boulva* is provided here.

CONCLUSION

For the reasons stated above, appellant believes that appealed claims are allowable over the cited prior art references, and respectfully requests that the Board of Patent Appeals and Interferences reconsider the rejection of the appealed claims and reverse the decision of the examiner in whole.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on June 12, 2008,

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CLAIMS APPENDIX

1. A drive device comprising:
gear unit having a gear shaft;
a motor unit having a motor shaft drivingly connected to the gear shaft; and
at least one cooling unit arranged within the drive device; and
a coupling unit arranged between the gear unit and the motor unit and drivingly connecting the gear shaft and the motor shaft;
wherein the at least one cooling unit is arranged in the coupling unit.
4. The drive device according to claim 1, wherein the cooling unit comprises at least one fan.
6. The drive device according to claim 1, wherein the coupling unit comprises a coupling hub connected fixedly to the gear shaft and the motor shaft.
7. The drive device according to claim 6, wherein the coupling hub is configured to elastically widen over a portion of a length thereof.
8. The drive device according to claim 7, wherein the coupling hub has at least one longitudinal slot.
9. The drive device according to claim 8, further comprising a clamping ring arranged in an area of the longitudinal slot of the coupling hub.
10. The drive device according to claim 9, wherein the clamping ring and the coupling hub together form a monolithic part.
11. The drive device according to claim 9, wherein the clamping ring is a separate part seated on the coupling hub.

12. The drive device according to claim 9, wherein the at least one fan is fixedly mounted on the clamping ring.

13. The drive device according to claim 6, wherein the at least one fan is fixedly mounted on the coupling hub.

14. The drive device according to claim 6, wherein the fan is fixedly mounted on the coupling sleeve.

15. The drive device according to claim 4, wherein the coupling unit has a flow chamber and wherein the fan is positioned in the flow chamber.

16. The drive device according to claim 15, wherein the coupling unit has at least one intake opening and at least one exhaust opening that open into the flow chamber.

17. The drive device according to claim 4, wherein the at least one fan is fixedly mounted on the motor shaft.

18. The drive device according to claim 1, wherein the cooling unit has at least one flow chamber for a cooling medium.

EVIDENCE APPENDIX

- NONE -

RELATED PROCEEDINGS APPENDIX

- NONE -